

Earth Science Standards:

- 2a. Students know the solar system is located in an outer edge of the disc-shaped Milky Way galaxy, which spans 100,000 light years.
- 2b. Students know galaxies are made of billions of stars and comprise most of the visible mass of the universe.
- 2g. Students know how the red-shift from distant galaxies and the cosmic background radiation provide evidence for the "big bang" model that suggests that the universe has been expanding for 10 to 20 billion years.

Physics Standards:

- 1e. Students know the relationship between the universal law of gravitation and the effect of gravity on an object at the surface of Earth.
- 1f. Students know applying a force to an object perpendicular to the direction of its motion causes the object to change direction but not speed (e.g., Earth's gravitational force causes a satellite in a circular orbit to change direction but not speed).
- 1g. Students know circular motion requires the application of a constant force directed toward the center of the circle.
- 3c. Students know the internal energy of an object includes the energy of random motion of the object's atoms and molecules, often referred to as thermal energy. The greater the temperature of the object, the greater the energy of motion of the atoms and molecules that make up the object.